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UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/217,740 12/21/98 CAO

M 10961260-1

EXAMINER

MMC2/1206

AGILENT TECHNOLOGIES
LEGAL DEPARTMENT, 51UPO
INTELLECTUAL PROPERTY ADMINISTRATION
P.O. BOX 58043
SANTA CLARA CA 95052-8043

OWENS, D.

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

12/06/00

Please find below and/or attached an Office communication concerning this application r proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.

09/217,740

Applicant(s)

CAO ET AL.

Examiner

Douglas W Owens

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Continued Prosecution Application

1. The request filed on September 13, 2000 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/217,740 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not disclose a protective outer wall that comprises a layer of nitride. The specification only discloses an inner sealing wall comprising a layer of nitride and a protective outer wall that comprises a layer of oxide.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 5,976,950 to DiSimone et al.

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Regarding claim 5, DiSimone et al. teaches a semiconductor isolation structure comprising:

- a substrate (401) with a surface;

- a deep region comprising an oxide (Fig. 4G);

- a shallow region comprising:

- a protective outer wall (403) adjacent the substrate; and

- an inner sealing wall (411) adjacent the protective wall and exclusively within the shallow region.

DiSimone et al. does not teach a first and second device formed in the substrate and adjacent the isolation structure. It is well known in the art to place isolation structures between active devices and would have been obvious to one of ordinary skill in the art to do so since it is desirable to prevent active devices from shorting together.

Regarding claim 6, DiSimone et al. teaches an isolation structure, wherein the protective wall comprises an oxide wall and a nitride wall.

6. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiSimone et al. in view of US patent No. 4,551,743 to Murakami.

Regarding claim 1, DiSimone et al. teaches an isolation structure comprising:

- a substrate (401);

- an isolation region comprising:

- a deep region with a cross sectional area (Fig. 4G); and

- a shallow region comprising:

- a protective outer wall (403) adjacent the substrate;

an inner sealing wall adjacent the protective outer wall, and
exclusively within the shallow region; and
the shallow region having a cross sectional area.

DiSimone et al. does not teach a deep region cross-sectional area that is greater than the shallow region cross-sectional area. Murakami teaches an isolation structure, wherein the deep region cross-sectional area is greater than the shallow region cross sectional area. It would have been obvious to one of ordinary skill in the art to incorporate the teaching of Murakami into the device taught by DiSimone et al. since it is desirable to make circuits with a high integration density and it is also desirable to prevent the oxide from extending into the active area.

DiSimone et al. does not teach an isolation structure with a first and second device adjacent the isolation structure. Murakami teaches an isolation structure with a first and second device adjacent the isolation structure. It would have been obvious to incorporate the teaching of Murakami into the device taught by DiSimone et al. since it is conventional in the art to use isolation structures in this manner. Moreover, it is desirable to prevent active devices from shorting together.

Regarding claim 2, DiSimone et al. teaches an isolation structure, wherein the isolation region comprises an oxide.

Regarding claim 4, DiSimone et al. does not teach a protective outer wall comprising a layer of nitride. DiSimone et al. teaches a protective outer wall comprising an oxide. It would have been obvious to one of ordinary skill to use a nitride for the outer protective wall since it is a known material that is well suited for the intended use.

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Response to Arguments

7. Applicant's arguments with respect to claims 1, 2 and 4-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DWO
December 1, 2000

Tom Thomas